Claims

We claim:

1. A method selecting a circuit to service an application request to transmit data over a network, the network having a plurality of circuits that include at least one low bandwidth circuit and one high bandwidth circuit, comprising:

measuring, for each of circuits an average utilization if the application request is assigned to the circuit;

assigning the application request to the high bandwidth circuit if the average utilization is less than a predetermined threshold;

assigning the application request to the low bandwidth circuit if the average utilization is less than one, and otherwise

declining the application request.

2. The method of claim 1 wherein the predetermine threshold is one minus a guard bandwidth for preventing saturation of the high bandwidth circuit.

3. The method of claim 1 wherein the average utilization for each circuit is determined as a probability, and further comprising:

selecting a particular circuit having a smallest probability;

assigning the application request to the selected circuit if the selected circuit is the high bandwidth circuit and the average utilization is less than a predetermined threshold;

assigning the application request to the selected circuit if the selected circuit is the low bandwidth circuit and the average utilization is less than one, and otherwise

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declining the application request.

4. The method of claim 3 wherein the network includes a plurality of high bandwidth circuits.

5. The method of claim 3 wherein the probability is based on a mean data arrival rate μ_S and a standard deviation σ_S of the data arrival rate of traffic with an identical application type as the application request, and with a mean data rate μ_W and a standard deviation σ_W of aggregate traffic on the high bandwidth circuit.

6. The method of claim 5 wherein the mean data arrival rate μ_S and the standard deviation σ_S of the data arrival rate of traffic with the identical application type as the application request, and with the mean data rate μ_W and the standard deviation σ_W of aggregate traffic on the high bandwidth circuit are stored in a table.

7. The method of claim 1 wherein the an average utilization U_h 133 of the high bandwidth circuit within the last M time slots, where M is an integer.

7. The method of claim 3 wherein the probability is in a form of a Gaussian distribution.

8. The method of claim 3 the average utilization over predetermined number of preceding time slots using a taps of a delay line.

9. The method of claim 1 wherein a full utilization is measured as one, and no utilization is measured as zero.

10. A system selecting a circuit to service an application request to transmit data over a network, the network having a plurality of circuits that include at least one low bandwidth circuit and one high bandwidth circuit, comprising:

a circuit analyzer configured to measure, for each of circuits an average utilization if the application request is assigned to the circuit; and

an admission control configured for assigning the application request to the high bandwidth circuit if the average utilization is less than a predetermined threshold, assigning the application request to the low bandwidth circuit if the average utilization is less than one, and otherwise declining the application request.

11. The system of claim 1 wherein the assigning is performed by a switch configured for connecting the low and high bandwidth circuits to the application request.